Supplementary Information

A Micro/mesoporous Aluminosilicate: Key Factors Affecting Framework Crystallization during Steam-assisted Synthesis and Its Catalytic Property

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Table S1. The experimental parameters of every sample.

Sample	Humidity	Drying Temperature / °C	Molar ratio of TEA : SiO$_2$	Steaming time / h
c-TUD-1(H$_{40\%}$)	40%	90	1:1	12
c-TUD-1(H$_{50\%}$)	50%	90	1:1	12
c-TUD-1(H$_{100\%}$)	100%	90	1:1	12
c-TUD-1(H$_S$)	Supersaturated	90	1:1	12
c-TUD-1(D$_{80}$)	100%	80	1:1	12
c-TUD-1(D$_{90}$)	100%	90	1:1	12
c-TUD-1(D$_{100}$)	100%	100	1:1	12
c-TUD-1(D$_{120}$)	100%	120	1:1	12
c-TUD-1(A$_0$)	100%	90	0:1	12
c-TUD-1(A$_{0.5}$)	100%	90	0.5:1	12
c-TUD-1(A$_1$)	100%	90	1:1	12

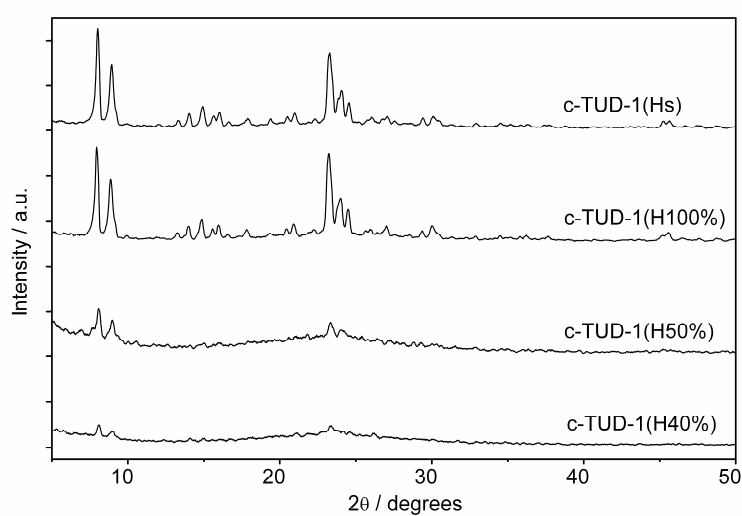|				
c-TUD-1(A$_2$)	100%	90	2:1	12
c-TUD-1(T$_3$)	100%	90	1:1	3
c-TUD-1(T$_6$)	100%	90	1:1	6
c-TUD-1(T$_{12}$)	100%	90	1:1	12
c-TUD-1(T$_{24}$)	100%	90	1:1	24
c-TUD-1(T$_{60}$)	100%	90	1:1	60

Fig. S1. XRD patterns of c-TUD-1(H$_n$) series samples prepared by steaming under different humidities.

Table S2. Texture properties of samples after steaming under different humidity.

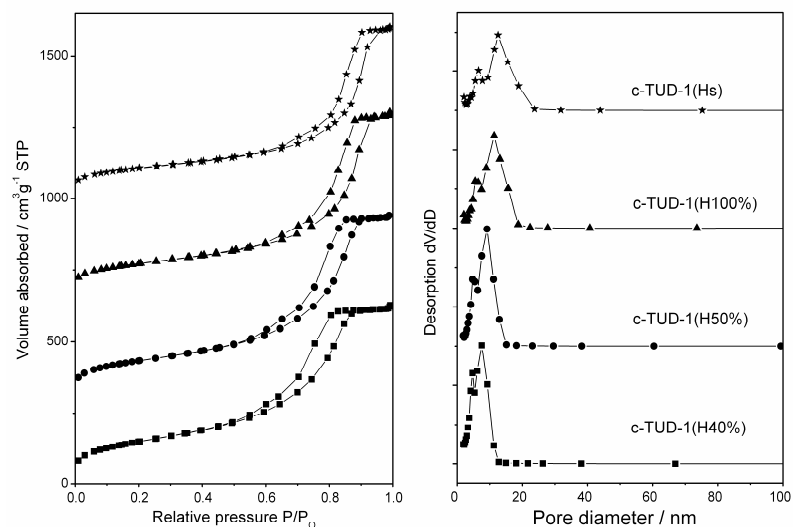| Sample	S_{BET} / m^{2}g^{-1}	$S_{external}$ /m^{2}g^{-1}	V_{BJH} /cm^{3}g^{-1}
c-TUD-1(H$_{40\%}$)	537	500	0.89
c-TUD-1(H$_{50\%}$)	477	434	0.94
c-TUD-1(H$_{100\%}$)	440	365	0.90
c-TUD-1(H$_s$)	386	310	0.87

Fig. S2. N_2 adsorption/desorption isotherms and their corresponding pore size distributions of c-TUD-1(H_n) series samples. From bottom to top, the patterns represent samples c-TUD-1($H_{40\%}$) (■), $H_{50\%}$ (●), $H_{100\%}$ (▲), H_s (★), respectively. The curves of samples (a-d) are vertically offset by 200, 650 and 1000 $cm^{-3}g^{-1}$, respectively. Pore size distribution is corresponded to the adsorption/desorption isotherms with the same order.
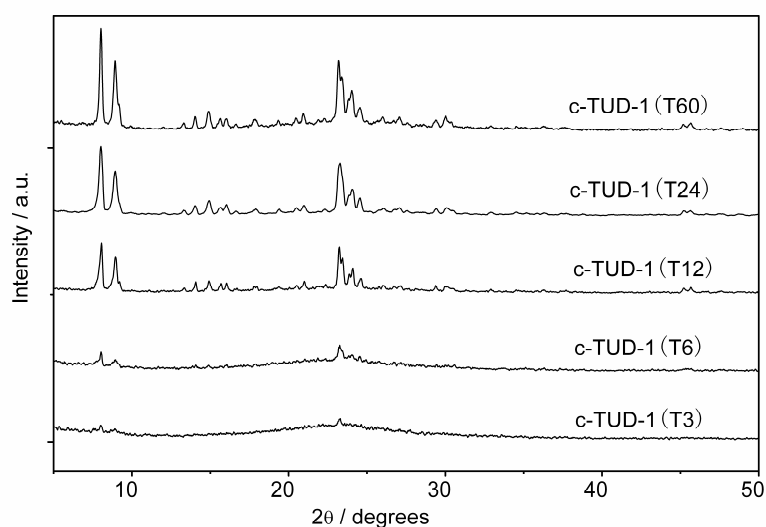

Fig. S3. XRD patterns of c-TUD-1(T_n) series samples prepared by steam-assisted crystallization for different time periods of steaming.
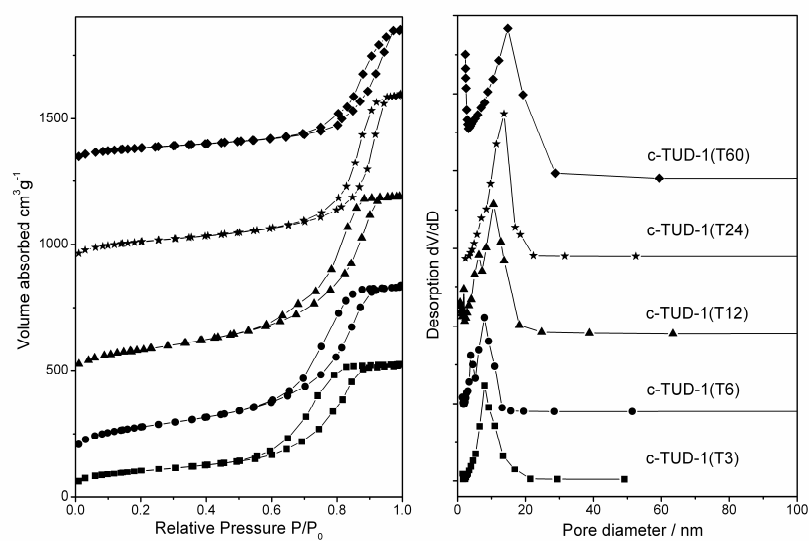
Figure S4. N_2 adsorption/desorption isotherms and their corresponding pore size distributions of

c-TUD-1(T_n) series samples. From bottom to top, the patterns represent samples of c-TUD-1(T_3) (

■), c-TUD-1(T_6) (●), c-TUD-1(T_{12}) (▲), c-TUD-1(T_{24}) (★) and c-TUD-1(T_{60}) (◆), respectively.

The curves of samples are vertically offset by 150, 450, 900 and 1300 $cm^{-3}g^{-1}$, respectively. Pore

size distribution curves are corresponding to the adsorption/desorption isotherms with the same

order.